CLAIMS

What is claimed is:

1. A method of EGR recovery comprising:

calculating a transient volume of EGR sufficient to maintain NOx emitted by an engine below a predetermined level during a period of transient operation of said engine;

supplying an actual volume of EGR during said period of transient operation;

measuring said actual level of EGR during said period of transient operation;

calculating an EGR deficit between said transient volume of EGR and said actual volume of EGR during said period of transient operation;

integrating said EGR deficit over said period of transient operation to calculate a deficit volume of EGR;

calculating a following steady-state volume of EGR sufficient to maintain NOx emitted by said engine below said predetermined level during a following period of substantially steady-state operation of said engine; and

supplying said following steady-state volume of EGR plus said deficit volume of EGR during said following period of substantially steady-state operation of said engine.

2. The method of EGR recovery of claim 1, comprising further:

calculating a leading steady-state volume of EGR sufficient to maintain NOx emitted by an engine below said predetermined level during a leading period of substantially steady-state operation of said engine;

supplying said leading steady-state volume of EGR during said leading period of substantially steady-state operation of said engine.

3. The method of EGR recovery of claim 1, comprising further:

reducing said actual volume of EGR during said period of transient operation.

4. The method of EGR recovery of claim 1, comprising further:

normalizing said EGR deficit to produce a unitless parameter.

5. The method of EGR recovery of claim 1, comprising further:

freezing said integration via a bit mask.

6. The method of EGR recovery of claim 1, comprising further:

freezing said integration at a load threshold.

7. The method of EGR recovery of claim 1, comprising further:

adjusting a duration of said following period of substantially steady-state operation of said engine.

8. The method of EGR recovery of claim 1, comprising further:

reducing said deficit volume of EGR supplied during said following period of substantially steady-state operation of said engine if an air-to-fuel ratio approaches a smoke limit air-to-fuel ratio.

9. The method of EGR recovery of claim 1, wherein said period of transient operation is selected from the group consisting of:

acceleration,

deceleration,

braking,

engine braking, and

lugging.

10. A system for EGR recovery comprising:

means for calculating a transient volume of EGR sufficient to maintain NOx emitted by an engine below a predetermined level during a period of transient operation of said engine;

means for supplying an actual volume of EGR during said period of transient operation;

means for measuring said actual level of EGR during said period of transient operation;

means for calculating an EGR deficit between said transient volume of EGR and said actual volume of EGR during said period of transient operation;

means for integrating said EGR deficit over said period of transient operation to calculate a deficit volume of EGR;

means for calculating a following steady-state volume of EGR sufficient to maintain NOx emitted by said engine of said engine below said predetermined level during a following period of substantially steady-state operation of said engine; and

means for supplying said following steady-state volume of EGR plus said deficit volume of EGR during said following period of substantially steady-state operation of said engine.

11. The system for EGR recovery of claim 10, comprising further:

means for calculating a leading steady-state volume of EGR sufficient to maintain NOx emitted by said engine below said predetermined level during a leading period of substantially steady-state operation of said engine;

means for supplying said leading steady-state volume of EGR during said leading period of substantially steady-state operation of said engine.

12. The system for EGR recovery of claim 10, comprising further:

means for reducing said actual volume of EGR during said period of transient operation.

13. The system for EGR recovery of claim 10, comprising further:

means for normalizing said EGR deficit to produce a unitless parameter.

14. The system for EGR recovery of claim 10, comprising further:

means for freezing said integration via a bit mask.

15. The system for EGR recovery of claim 10, comprising further:

means for freezing said integration at a load threshold.

16. The system for EGR recovery of claim 10, comprising further:

means for adjusting a duration of said following period of substantially steady-state operation of said engine.

17. The system for EGR recovery of claim 10, comprising further:

means for reducing said deficit volume of EGR supplied during said following period of substantially steady-state operation of said engine if an air-to-fuel ratio approaches a smoke limit air-to-fuel ratio.